

Mathematics in a Charlotte Mason Education

# ARITHMETIC SANA

## YEAR 5 BUNDLE



#### Beauty & Truth Math

- Mathematics in a Charlotte Mason Education -

## ARITHMETIC YEAR 5 BUNDLE

Used in conjunction with STRAYER-UPTON PRACTICAL ARITHMETICS, SECOND BOOK by George Drayton Strayer and Clifford Brewster Upton

#### ARITHMETIC • YEAR 5 BUNDLE

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"Never are the operations of Reason more perfect and more delightful than in mathematics. Here, men do not begin to reason with a notion that causes them to lean to this side or to that. By degrees, absolute truth unfolds itself. We are so made that truth, absolute and certain truth, is a perfect joy to us; and that is the joy that mathematics affords." (Charlotte Mason, <u>Vol. 4</u>, pp. 62-63)

"How sad that this subject, ethereal as faery and powerful beyond telling, should find no other adjective than 'useful' to justify us in imparting it to our children. Number to the philosophers of old was a touchstone of learning; it was worthy of their greatest respect and deepest thought. Let us take this gift with the others they have given us; this thought of Number as worthy of our best, aesthetically satisfying as an art, beckoning onward as a science, and luring us ever forward towards increasingly enchanting prospects ahead." (Stephens, Number: A Figure and a Step Onward, p. 4)

"And if our boys and girls can be brought to feel that arithmetic is a game—a noble game—one of the noblest though not one of the most spectacular that the human race has played—and that it is an honour and a privilege to play at it; and if we can keep that feeling alive by the right exercise and the apt stimulus, cunningly applied with a smile and a jest, as becomes so noble a game, the arithmetic lesson will cease to be a dismal grind and become a grand pursuit full of glamour and excitement." (Ballard, <u>Teaching the Essentials of Arithmetic</u>, p. 34)



## WELCOME

Thank you for purchasing this full-year guide! We are humbled and honored by your support. Please read through this introduction carefully. Understanding our approach is vital to maximizing the benefits of each guide.

#### THE VISION

Beauty & Truth Math exists to assist students AND teachers in the realm of mathematics in a Charlotte Mason education. It is possible to simply read the scripted lessons and check your students' answers. However, this keeps the teacher from being an engaged and involved partner in the learning process.

These lessons are written with the idea that the teacher will be *working with* the students, asking questions, having discussions, and monitoring progress. Each lesson is an opportunity for building relationships between you, your students, and the Lord. Please make the most of this time together, walking beside your students in exploring and understanding mathematical ideas.

We thoroughly believe that math done completely in isolation misses opportunities to make deep connections. Just like a foreign language needs to be communicated and spoken to make connections, math is its own language with its own big ideas that are best learned through discussion.

You are working with *living* born persons; our aim is to provide a *living* education. *Living* involves changes and adaptations. These lessons are guides and servants, not masters you must follow. Please use the Spirit's wisdom when discerning what you should modify, skip altogether, push forward on, or slow down on as you and your students are on this journey.

#### COPYRIGHT

These guides have been a labor of love. Please respect our hard work and do not share any content and links that are not publicly available on our site.

#### WEBSITE LINKS DISCLAIMER

PLEASE PREVIEW LINKS BEFORE USING! While we have done our best to ensure all sites we link to are appropriate, we do not have any control over changes made to them.

We are thankful for the free resources other sites make available and want to support them whenever possible. As they generate revenue through traffic on their sites, we link directly to their pages.

In many cases, there will be multiple worksheets provided on the pages linked. Most of the time, we will specify which worksheet is needed in the guide. Sometimes, you will need to choose the worksheet. This will be stated in the guide as well.

It is the teacher's final responsibility to ensure the content is age-appropriate for the lessons. Please email us at <u>contact@beautyandtruthmath.com</u> to report broken links.

## **READY, SET, GO!**

#### "Putting in the work up front to make the school days run easy."

We have created three folders to easily access the entire year of teacher help documents and printables included in this guide. Their unique QR codes and links are included in multiple places in this introduction and are shown here for easy identification.

We will walk you through how to use these linked folders in the following few pages, so please don't worry about viewing them now. This page is simply an introduction to them.

**Important Teacher Helps** – This folder contains helpful resources to assist and support you as you implement math in a Charlotte Mason education. It includes the following documents:

- A CHARLOTTE MASON MATH EDUCATION lays out a vision for a Charlotte Mason math education.
- THE ARITHMETIC PROGRESSION provides an overview of arithmetic in the Beauty & Truth Math Guides using Charlotte Mason's philosophy. Sources include PR articles & books recommended in the PUS Programmes.
- ALL ABOUT THE GUIDES is everything you need to know about the guide's setup.
- FORMS 1&2 REVIEW ACTIVITIES is a treasure trove of various review activities organized by topic. Use these to keep review time lively and engaging.
- FAOs is a list of questions we frequently answer from our customers. This document is a living document and will be updated occasionally.
- SUPPORT VIDEOS LIST is a compiled, linked list of support videos in this guide.
- ADDITIONAL SUPPLEMENTAL RESOURCES provide extra teacher support.

**<u>Cardstock Printables</u>** – This folder contains all resources that need to be printed on cardstock, as these will be used with your students multiple times throughout the lessons.

**Printables** – This folder contains all of the consumable printables for your students. Sometimes, you will need several copies.









#### **GET READY!**

- SEE the <u>Materials Needed</u> section in this guide to determine what materials you have and still need to purchase.
- CHECK OUT Our Favorites on our website. This is a list of recommendations we have compiled to help you prepare and organize your materials.
- PRINT the FORMS 1&2 REVIEW ACTIVITIES document in the Important Teacher Helps folder.
  - We recommend printing it on colored paper to make it easy to find. You only need to print this document once for all your Form 1&2 students.
- PRINT ALL OF THE DOCUMENTS in the **Cardstock** Printables folder. You will use these documents multiple times, so we recommend using cardstock paper. Some may need to be cut apart as well.
- PRINT AT LEAST THE FIRST TWO WEEKS of materials in the Printables folder. In the Materials Needed, we list how many copies you need for the entire year. Feel free to print all of them ahead of time or print them only a week or two in advance. You can find these documents listed under the Special Materials Needed section of the Weekly Resources Pages for Weeks 1 and 2.
- **DECIDE** if you will print the guide or use it on a screen.







#### GET SET!

- READ THROUGH THE FOLLOWING <u>IMPORTANT TEACHER HELPS</u>:
  - A CHARLOTTE MASON MATH EDUCATION
  - THE ARITHMETIC PROGRESSION
  - ALL ABOUT THE GUIDES
- Learn how to implement the guides in daily life. Read through the <u>Putting It</u> <u>Altogether</u> section of this guide.
- **Prepare your materials.** There is no one right way to do this! The following list is simply a compilation of ideas Beauty & Truth Math users have found helpful.
  - Create a student math notebook for each student.
    - Fill it with grid paper. In general, we recommend ½" squares. Some students may need larger squares based on their writing ability.
    - Create sections in the notebook for daily assignments, a math vocabulary page, and a reference section. It is up to you and your student how to order these. If applicable, create different sections for the different streams of math.
    - Decide if you will have your student write headings for each assignment. Information such as the date and page number are great things to include. Writing the problem number and showing the final answer, either with a box or circle around it, are also strongly encouraged. We recommend starting this in Year 2 or 3.
  - Put together a teacher math notebook for yourself.
    - Create sections for your personal calendar, the lessons from the guides, printable & supplementary resources, exams, notes, etc.
    - Find a place for the Cardstock Printables.
      - These could be stored in a folder in your teacher notebook or an accordion file folder. The goal is to keep them accessible and in good condition since you will use them often.
  - Use tabs to label and easily find what you need!
    - Tab each topic in the FORMS 1&2 REVIEW ACTIVITIES document (from the Important Teacher Helps folder).
    - In the Strayer-Upton books, tab the following:
      - Where you are at for the current lesson, and the corresponding answer key section in the back
      - Review & mental math pages
  - Have individual containers for each student's supplies.
  - $\circ$   $\,$  Decide how to store card sets.
    - We recommend placing them in plastic bags and storing them in an index card holder or binder pouch.



#### GO!

Any author of math textbooks or guides will tell you that we write to accommodate as many students as possible, and we provide more than is needed. You have complete freedom not only to modify the lessons, but also to adjust the number of problems assigned to meet the needs of your students.

Each week, you will need to do the following:

- Look over the new lessons to be covered with your student. Understand the big ideas and objectives.
- Choose review assignments to use with your students. These assignments build depth in highlighting and understanding different number relationships. When choosing what to review, consider three things:
  - 1) What areas do my students require more practice to solidify concepts?
  - 2) What topics have we not reviewed in a while?
  - 3) What assignments would give my students a reprieve and easier lesson to build their confidence and enjoyment of math?
- Choose mental math problems to use throughout the week, if needed.
- Take the Beauty & Truth Math Guide Vow I do solemnly promise that I will remember and implement the following statements:
  - I have permission from Charlotte Mason and the authors of these lessons to adjust or modify any lesson, at any time, to provide a living education to my unique, born persons.
    - I have permission from Charlotte Mason and the authors of these lessons to assign fewer problems than written in the lessons to provide a living education to my unique, born persons.
  - I have permission from Charlotte Mason and the authors of these lessons to assign more problems than written in the lessons to provide a living education to my unique, born persons.

"...the educator has to deal with a self-acting, self-developing being, and his business is to guide, and assist in, the production of the latent good in that being, the dissipation of the latent evil, the preparation of the child to take his place in the world at his best, with every capacity for good that is in him developed into a power." (Mason, <u>Vol. 1</u>, p. 9)

• Pray for joy and wisdom as you set out each day exploring mathematical truths with your students. Now dive right into using the lessons, confident that the Lord is with you and for you!

## ALL ABOUT THE YEAR

#### SEEING THE BIG PICTURE

There is NOT a one size fits all way to teach math using the Charlotte Mason method. Our guides are one option for teachers to use. We have created them to be adaptable to each unique student, both in the big picture and in the guides' details.

We have designed our curriculum to imitate the math streams used in Charlotte Mason's schools. Students have several options for the tracks and combinations of these streams. For more information, see our **Scope & Sequence** page on our website.

Additionally, **The Guides' Big Ideas** page on our website shows the main ideas throughout the years.

#### YEAR OVERVIEW

In Year 5, students focus on understanding fractions and decimals more deeply than in previous years. Extensive time is spent on understanding multiplying and dividing fractions and decimals. Activities are included to provide students with opportunities to investigate these ideas with manipulatives and drawings and to explore patterns.

We also lay a foundation for algebra this year by introducing the order of operations, the distributive property, factoring, and variables.

We want students to develop the habit of clearly labeling their work. In Year 5, we recommend students include the date and page number of all assignments completed in their math notebooks. While completing assignments, encourage students to write each problem number and mark each answer by drawing a circle or a box around it.

#### EVERY DAY & SPECIAL MATERIALS

We assume students will always have their pencil, math notebook with grid paper, grid dry-erase board, and dry-erase marker handy for lesson time. Any additional materials beyond these items are listed in the Special Materials Needed sections.



#### CARDSTOCK PRINTABLES VS. PRINTABLES

The teacher must prepare all cardstock printables before the term begins. The cardstock printables are listed as special materials, but links are not provided. Links for the Printables Folder are always provided in the special materials.

There are more printables this year than in other years. There are several pages of Ballard's Fundamental Arithmetic Series included.

#### THINGS TO LOOK FORWARD TO THIS YEAR

This list highlights the special features and noteworthy things throughout the year. These items are expounded on in each term introduction.

- Math Jeopardy
- Math Vocabulary Page
- Exercises from Fundamental Arithmetic, Books II, III, & IV by Philip Ballard
- All About Pages
- Subtracting Fractions and Decimals using the Equal Additions Method
- Exploring the Ideas of Fractions with Manipulatives and Patterns
- Creating Measurement Tools
- Introduction to Variables using Perimeter and Area

### MATERIALS NEEDED FOR THE ENTIRE YEAR

- 8 Colors of the Same Size Legos (or other building blocks):
  - 1 Block EACH of Colors E, F, G, & H
  - 18 Blocks of Color A
  - 2 Blocks of Color D
  - 4 Blocks of Color C
  - 8 Blocks of Color B
- Apple
- Beads (16 white and 8 blue)
- Bowls (1 medium-sized mixing bowl and at least 8 small ones)
- Brownie Recipe and Ingredients
- Calculator
- Cardboard or Cardstock x 2 strips
  - 1 about  $1\frac{1}{2}$  long and 6" wide
  - 1 at least 4" by 2 ½"
- Cardstock x 3
- Chair or Stair (that could be used to stand on safely)
- Colored Pencils



- Construction Paper x 7 (various colors)
- Cookie
- Counters x 20
- Cubes x 30 (any kind, i.e., sugar, wood, plastic)
- Cutting Board
- Deck of Playing Cards (or Uno cards)
- Dice x 5
- Dictionary

#### <u>Our Favorites</u>

Check out our recommendations to see if any of them would be helpful to you in preparing and organizing your materials.



#### Everyday Materials

- Grid Dry-Erase Board
- Dry-Erase Marker
- Notebook with Graph Paper
- Pencils

#### Cardstock Printables

- 1" Grid Paper x 2
- All About Fractions & Decimals
- All About Place Value
- Decimals to Fractions Cards, Set 1
- Decimals to Fractions Cards, Set 2
- Equivalent Fractions
- Fraction Strips
- Frequently Used Decimals
- Helpful Equations
- Math Vocabulary Page
- Multiplication Table Chart
- Options for Math Vocabulary Page
- Pretend Money





Mathematics in a Charlotte Mason Education

## ARITHMETIC SANA YEAR 5 • TERM 1

#### • WEEK 4 RESOURCES • YEAR 5. TERM 1. WEEK 4

#### OVERVIEW

We will take our first formal look at the order of operations this week, using problems that the students have solved previously. We want to help them see how mathematicians denote what operation to do first, second, third, and so on. We will not be covering exponents now, but we will study those more towards the end of Year 5.

Please set aside a few minutes each day to have your student do at least one or two subtraction problems using the Equal Additions Method. We want them to be comfortable with this method because we will use it to subtract fractions in the next few weeks.

In the Suggested Review, there is an option to have your student create receipts for customers. This assignment will span Weeks 4 and 5. If you choose to assign this to your student, there are many free invoice templates online that your student can edit to make up his own company, address, logo, etc., to use for making receipts if he would like to do that.

Also, remember to have the student complete an Improvement Test each week. It may be fun to see how fast they can subtract using the method of equal additions.

#### BIG IDEAS NEEDED BEFORE BEGINNING

- Addition, Subtraction, Multiplication, and Division
- Subtraction using the Equal Additions Method

#### SUGGESTED PACE

Day 1: Order of Operations, Ls. 1 Day 2: Order of Operations, Ls. 2 Day 3: Order of Operations, Ls. 3 Day 4: Order of Operations, Ls. 4

#### ONGOING REFERENCE PAGES

• All About Place Value

#### MENTAL MATH IDEAS

• 113

#### SPECIAL MATERIALS NEEDED

- Colored Pencils (red, orange, yellow, green, blue, purple)
- Calculator
- <u>Order of Operations</u> <u>Worksheet</u> (Click on the image on the website to download the worksheet.)



#### SUGGESTED REVIEW

- Improvement Test: 33
- Subtraction (Y5.T1.W3): 268
- Measuring Capacity, Weight and Time (Y4.T3.W4): 186, 187, 189, 191
- Problem Solving: 176-177



#### • Order of Operations, Ls. 1 •

Y5. T1. W4. L1

#### SUBJECT

Arithmetic



#### OBJECTIVES

Students will be able to complete multi-step arithmetic problems and identify the steps taken in order.

#### **RESOURCES USED** Strayer-Upon, Book 2 (p. 269, 280)

SPECIAL MATERIALS NEEDED

Colored Pencils (red, orange, yellow, green, blue, and purple)

#### SPECIAL NOTE

There is no separate "Student Response" section in this lesson as the assignment is completed throughout the lesson. There is no moving van symbol either. Please have your student stop solving the problems on page 280 in time to complete steps #5 and 6.

We won't use all the colors of the pencils listed. However, we want the students to understand that there could be more than 2 or 3 steps to a math problem. Having these colors out will give the visual of many steps. Please feel free to put some colors away if this is confusing to the student.

- 1. Last week, we learned a new way to solve subtraction problems.
- 2. To review, complete p. 269: 20. Please encourage the student to use the method of Equal Additions in any subtraction problem they solve from now on.
- 3. There are multiple steps to complete in these problems, right? And you have solved many problems that are more than one step. Today, we will take a little while and review some of these ideas.
- 4. Complete p. 280: 1-9 and follow these steps for each problem. Please feel free to lessen the number of problems if needed.
  - a. Read the problem.
  - b. Tell your teacher how you would go about solving it. What would you have to do first, second, etc.?
  - c. Practice estimating your answer.
  - d. Complete the math work in your math notebook. Have the student mark the final answer with a circle or a box around it.

- e. We will follow the color of the rainbow to show the order of our steps. Go back and lightly color over the first step with red and color over the second step in orange. If you completed the third step, color it yellow. The fourth step would be colored green, the fifth step would be colored blue, and the sixth step would be purple.
- f. Go back and look at your final answer compared with your estimation. Are they close? If not, and the problem lies with your estimation, don't get discouraged! Keep practicing this skill, and it will become easier and closer to the actual answer.
- 5. Look back at all the steps you colored red. Are they the same operation? (No, some are addition, some are multiplication, and some are subtraction.) Are the second steps all the same operation? (No) Do you think if you did the steps in reverse order, you would get the correct final answer? (No)
- 6. In our next lesson, we will begin studying how mathematicians show the order of their steps.

#### • Order of Operations, Ls. 2 •

Y5. T1. W4. L2

#### SUBJECT

Arithmetic



#### OBJECTIVES

Students will be able to identify the first and second steps of a two-step problem using parentheses. **RESOURCES USED** Strayer-Upon, Book 2 (p. 280)

#### SPECIAL MATERIALS NEEDED

Colored Pencils (red, orange, yellow, green, blue, and purple)

#### SPECIAL NOTE

Today's lesson again has no separate "Student Response" section or moving van symbol.

- 1. Do you remember what types of problems we solved in our last lesson? (problems that had multiple steps) And we colored the steps in order of the colors of the rainbow to show which one comes first, then second, and so on.
- 2. Today, we will go back to the problems you did yesterday and rewrite them, clearly showing which step to complete first.
- 3. Before we start, do you know what symbol we use to say, "Hey! Solve me first!"?
- 4. Have you seen parentheses? What do they mean in a story? (Maybe a side-note) In mathematics, we use parentheses to show the first step. You usually see problems written horizontally when showing the order of the steps. We will practice with the problems you completed yesterday. They will look a little strange written in this way, but it will help you see what is going on.
- 5. Find the rainbow-colored work from yesterday in your math notebook. Complete the following for each of the problems.
  - a. Explain the steps you took to solve the problem.
  - b. Write the numbers of the first step and the operation used horizontally.
  - c. Draw parentheses around those numbers.
  - d. Then after that, write the next step beside the parentheses.
  - e. If you want to color these steps using the rainbow, feel free to do so.
    #1 will look like this: (4.89 + 8.12 + 10.27 + 3.16) ÷ 4
- 6. How did that go? Do you have any questions?
- 7. We will look at more problems tomorrow that involve even more steps.

#### • Order of Operations, Ls. 3 •

Y5. T1. W4. L3

#### SUBJECT

Arithmetic



#### OBJECTIVES

Students will be able to identify the first, second, and third steps in a three-step problem.

**RESOURCES USED** Strayer-Upon, Book 2 (p. 281)

#### SPECIAL MATERIALS NEEDED

Colored Pencils (red, orange, yellow, green, blue, and purple)

#### SPECIAL NOTE

There is no separate "Student Response" section in this lesson as the assignment is completed throughout the lesson. There is also no moving van symbol.

- 1. We have been working through some problems that involve more than one step. Can you tell me what you remember?
- 2. Today, we will work through some problems involving more steps, and you get to do more coloring!
- 3. Complete p. 281: 1-3, 5-6, and follow these steps for each problem. Please feel free to lessen the number of problems if needed.
  - a. Read the problem.
  - b. Tell your teacher how you would go about solving it. What would you have to do first? Second? Third?
  - c. Practice estimating your answer.
  - d. Complete the math work in your math notebook. Be sure to mark your final answer.
  - e. We will follow the color of the rainbow to show the order of our steps. Go back and lightly color over the first step with red and color over the second step in orange. If you completed the third step, color it yellow. The fourth step would be colored green, the fifth step would be colored blue, and the sixth step would be purple.
  - f. Go back and look at your final answer compared with your estimation. Are they close? If not, and the problem lies with your estimation, don't get

discouraged! Keep practicing this skill. It will become easier and closer to the actual answer.

- g. Now go back and rewrite all your math work horizontally. Place parentheses around the first step like we did yesterday.
- h. Now, what do you think you can do with the second step to ensure it is completed second? (Parentheses) Go ahead and put parentheses around the second step. When there are two sets of parentheses, which one do you think shows the first step? Math is like reading. In English, we read from left to right. When we have more than one set of parentheses, we also solve each group from left to right.
- i. How about the third step? (Parentheses around it if needed.)
- j. If you want to color each step, you may, but you don't have to. The first problem on page 281 will look like this:  $(0.32 \times 2) + (0.36 \times 12) = 4.96$ . The student may color the  $(0.32 \times 2)$  red, the  $(0.36 \times 12)$  orange, and the addition sign yellow.
- 4. What do you think about parentheses in math? Tomorrow we will look at math problems that may not have parentheses and what you do with those!

#### STUDENT RESPONSE

1. In your math notebook, write what you know of parentheses in a math problem and what they tell you to do.

#### • Order of Operations, Ls. 4 •

Y5. T1. W4. L4

#### SUBJECT

Arithmetic



#### OBJECTIVES

Students will be able to calculate expressions using the order of operations (excluding exponents).

#### **RESOURCES USED** None

#### SPECIAL MATERIALS NEEDED

Calculator, <u>Order of Operations</u> <u>Worksheet</u>, Colored Pencils

- 1. We have been doing many problems this week involving lots of steps! We have looked at how order matters and how parentheses are the symbol used to show what we do first.
- 2. Today, let's look at numbers that don't have parentheses.
  - a. Solve this equation (remember that an equation is just saying that both sides are equal), and tell me your final answer and how you got it. 4 + 5 x 3 = ?
  - b. Do you think you would do the addition first and then multiplication or the multiplication and then the addition? There are no parentheses to help out with this problem, are there?
  - c. Grab a calculator! Yes, you heard me correctly. :) Type the equation into your calculator and see what it says. Is it giving you the same answer you found?
  - d. Where could you draw parentheses to ensure that the addition is completed first? (Around the 4 + 5)
  - e. Where could you draw parentheses to ensure the multiplication is completed first? (Around the 5 x 3)
  - f. Do you get the same answer when you solve each of those equations? (No) Those parentheses make such a difference!
- 3. Remember how mathematicians look for the quickest, most efficient way of writing a problem? They have come up with a way that everyone agrees to solve problems without writing parentheses. This way, or a set of rules, is called the order of operations. If followed, you will find the correct answer. If not followed, you will find the incorrect answer.

- 4. You already know the first step. If there are parentheses, do the work inside of those. But what if the problem doesn't have parentheses? In that case, we look for any multiplication and division and complete those calculations from left to right. Then we look for any addition and subtraction and complete those calculations from left to right.
- 5. Look at the equation we started with, leaving the parentheses off.  $4 + 5 \ge 3 = ?$ 
  - a. What would we look for first? (Multiplication/Division)
  - b. And second? (Addition/Subtraction)
  - c. Using your red and orange colored pencils, color over 5 x 3 lightly with red, then the 4 + with the orange.
  - d. Calculate 5 x 3 and write your answer underneath the 5 x 3. You will have 4 + 15 =
  - e. Then what do we do? (Add)
  - f. And we get 19.
  - g. Did the calculator follow the order of operations? (Yes)
- 6. Let's try another one. 10 6 + 3 = ?
  - a. What would we look for first? (Multipliplication or division)
  - b. We don't have those operations. So now we look for? (Addition or subtraction)
  - c. Go in order from left to right.
  - d. The final answer is 7.
  - e. Does the order matter here? (Yes) Do you get the same answer if you do the addition before the subtraction? (No)
- 7. Try this one.  $12 4 \times 2 + 6 \div 3 = ?$ 
  - a. Color each step in the correct order as you find it. See the image to the right for an idea of how the student can shade.
  - b. Now, let's write each step. See the image to the right.



- $12 4 \times 2 + 6 \div 3$ = 12 - 8 + 2 = 4 + 2 = 6
- 8. Math Jeopardy Time! Make up a problem that includes at least three different operations. Solve it using the order of operations.
- 9. Find your work in your math notebook that you completed this week on page 280 of Strayer-Upton, Book 2. Look where you wrote the problems horizontally and put parentheses around the first step. Find two examples that follow the order of operations as written that didn't need parentheses. Find two examples that you had to include in parentheses.

#### **STUDENT RESPONSE**

- 1. Practice the order of operations using the worksheet provided to you by your teacher.
  - a. Complete each problem. Show your work and mark your final answer.
  - b. Then for the three problems that have parentheses, rewrite the problem without parentheses and solve the problem according to the order of operation. Do you get the same answer both times?
  - c. Now go back and add a set of parentheses to the problems without parentheses. Solve those and compare your answers to the original problems.
- 2. Explain what you know of the order of operations. What is it? Why do we have it?